AMENDMENTS TO THE SPECIFICATION

Please amend the specification as indicated hereafter. It is believed that the following amendments and additions add no new matter to the present application. Use ~~strikethrough~~ for deleted matter and underlined for added matter.

Please replace the following two paragraphs with substitute paragraphs, using the paragraph numbering of the published patent application, Pub. No. US 2002/0197618 A1, published on December 26, 2002:

[0003] The use of membrane channels to characterize polynucleotides as the molecules pass through the small ion channels has been studied. Kasianowicz et al. (*Proc. Natl. Acad. Sci. USA.* 93:13770-3, 1996, ~~incorporate~~ incorporated herein by reference) used an electric field to force single stranded RNA and DNA molecules through a 2.6 nanometer diameter ion channel in a lipid bilayer membrane. The diameter of the channel permitted only a single strand of a nucleic acid polymer to traverse the channel at any given time. As the nucleic acid polymer traversed the channel, the polymer partially blocked the channel, resulting in a transient decrease of ionic current. Since the length of the decrease in current is directly proportional to the length of the nucleic acid polymer, Kasianowicz et al. (supra) were able to determine experimentally lengths of nucleic acids by measuring changes in the ionic current.

[0136] As an alternative to voltage, a nucleic acid polymerase or exonuclease can be provided in one of the chambers to draw the ~~nucleic acid~~ nucleic acid through the channel as discussed below.